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THE PLANT DISEASE REPORTER

Issued By

THE PLANT DISEASE SURVEY

Division of Mycology and Disease Survey

BUREAU OF PLANT INDUSTRY, SOILS, AND AGRICULTURAL ENGINEERING

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The Plant Disease Reporter is issued as a service to plant pathologists throughout the United States. It contains reports, summaries, observations, and comments submitted voluntarily by qualified observers. These reports often are in the form of suggestions, queries, and opinions, frequently purely tentative, offered for consideration or discussion rather than as matters of established fact. In accepting and publishing this material the Division of Mycology and Disease Survey serves merely as an informational clearing house. It does not assume responsibility for the subject matter.

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THE PLANT DISEASE SURVEY
DIVISION OF MYCOLOGY AND DISEASE SURVEY

Plant Industry Station — Beltsville, Maryland
Volume 34 — July 15, 1950 — Number 7

IN THIS ISSUE

Charles M. Gates reports the presence of mosaic of Crotalaria spectabilis in southern Florida, as well as a condition designated "little-leaf", page 203.

Diseases observed during a survey of alfalfa and clover fields in Virginia this spring are reported by S. B. Fenne and others, page 204; stem nematode and a disease resembling bacterial wilt are noteworthy.

In reporting diseases observed on legumes and grasses in North Carolina last season, page 205, J. Lewis Allison mentions bacterial wilt and stem nematode of alfalfa and Curvularia leaf spot of Ladino clover as new to the State.

Results of germination tests with Arasan-treated and untreated soybean seed raise some questions for certification, according to S. B. Fenne and W. C. White, reporting results in Virginia, page 206.

Very heavy breakage of corn stalks in Michigan in 1949 was associated primarily with stalk rot, mostly Fusarium, as shown by results of a survey reported by E. A. Andrews and R. L. Janes, page 207.

Donald Folsom and Reiner Bonde report occurrence of black-dot disease (Colletotrichum) in Maine potatoes, page 208. In a second article, page 209, they state that the skin-spot disease is apparently more common than usual this spring on stored potatoes.

An outbreak of gray mold caused considerable loss in many tomato fields in the Fort Pierce area of Florida, according to Warren N. Stoner and William D. Hogan, page 210.

W. D. Valleau reports incidence of disease in tobacco plant beds in Kentucky this season, page 210.

Results of a survey for wheat mosaic in Kansas, Nebraska and Iowa, are reported by J. R. Wallin, page 211.

Brief Notes, page 212, contain reports on prevalence of spot anthracnose on dogwood in Atlanta, by Charles H. Driver; a root rot of Ribes in New Mexico, by John A. Stevenson and W. Andrew Archer; Fusarium wilt of tomato in Puerto Rico, by Thomas Theis; Verticillium on eggplant in Florida, by Warren N. Stoner and William D. Hogan; diseases observed on legumes in Kentucky, by W. D. Valleau; and some diseases of note in Michigan, by E. A. Andrews.

Some corrections, page 215.

May weather, page 216.

A MOSAIC AND LITTLE LEAF DISEASE OF CROTALARIA SPECTABILIS IN SOUTH FLORIDA

Charles M. Gates

Crotalaria spectabilis Roth. is a tall growing annual legume, used in south Florida as a cover and green manure crop on scarified pine land. Its chief value lies in the fact that it produces large quantities of green manure and affords excellent cover with little care and fertilizer.

A mosaic and witches broom disease has been reported on several species of Crotalaria, including C. spectabilis, by Johnson (1) in Virginia. This disease was transmitted to Vicia faba mechanically. More recently Jensen (2) reported a similar mosaic on C. incana in California. Two aphids transmitted this disease, Aphis gossypii and Myzus persicae. The author has been unable to find any reports of Crotalaria mosaic in Florida.

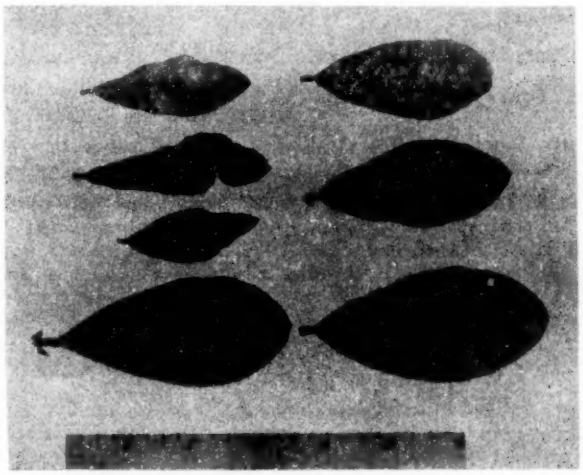

Figure 1. Leaves of Crotalaria spectabilis showing symptoms of: little-leaf disease (upper left), mosaic (upper right), and normal leaves (lower).

In the spring of 1949 several of the demonstration plots at the Botany Department at the University of Miami were sown with C. spectabilis for a summer cover. In June of that year several plants in one of the plots were noticed that appeared to be somewhat stunted and chlorotic. The leaves were normal to slightly smaller than normal in size but displayed a very marked mosaic pattern and were slightly rugose. The chlorotic spots ranged from pale green to bright yellow. No necrosis was evident. Flowers were normal but fruit set was not so heavy as on healthy plants. By mid-July the mosaic had spread through all of the plots and about 25 percent of the plants were affected.

Attempts to transmit the disease by mechanical means were not successful. Two hundred seeds from diseased plants were sown in alternate rows with 200 seeds from healthy plants. At the end of the six weeks 66.5 percent of the healthy seeds had germinated, and within two months 12 plants were diseased. Of the diseased seeds 14.5 percent germinated in six weeks, and three diseased plants were found in that lot.

In a one-fourth acre planting of C. spectabilis sown at the University horticultural farm in January 1950, mosaic was discovered in three plants by March 1. Growth was slow and germination uneven owing to infrequent rains, so that the dwarfing effect was not evident in this stand. By May 1 about 5 percent of the plants were diseased.

A modification of the mosaic disease discovered in this planting has been designated "little-leaf" disease. The plants were stunted, affected leaves were mottled, with the chlorosis ranging from pale green to pale yellow. No necrosis was evident. The leaves were heavily rugose and in some instances malformed. They were long and narrow and from one-half to one-quarter the

size of normal leaves. At the time of writing (June 9, 1950) the diseased plants are flowering poorly and no fruit has set as yet. Attempts to transmit the little leaf disease mechanically have not been successful.

Work is in progress to find a possible insect vector for these diseases. In the meantime it seems desirable to record the occurrence of these diseases on this host in south Florida.

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UNIVERSITY OF MIAMI, TROPICAL PLANT AND FOOD RESEARCH, SOUTH MIAMI, FLORIDA

ALFALFA-CLOVER DISEASE SURVEY IN VIRGINIA

S. B. Fenne, R. G. Henderson, T. J. Smith, and W. C. White

During the period of April 11 to 13, alfalfa and clover fields were visited in Roanoke, Botetourt, Rockbridge, Henrico, New Kent, and James City Counties. The writers were accompanied by O. S. Aamodt, K. W. Kreitlow, and W. H. Davies.

ALFALFA

In most of the fields visited, injuries were noted on the roots of alfalfa plants. In some cases these injuries were apparently caused by insects (curculio), while in other instances they were caused by Rhizoctonia spp. Frequently plants were found that showed a discoloration in the central portion of the tap root, indicating Fusarium infection which had occurred either through the crown or roots.

Several fields were visited in Roanoke, Botetourt, and Rockbridge Counties, where alfalfa was stunted and sickly in spots last fall. The stand in these fields this spring was badly thinned out, and some of the plants examined showed a yellow discoloration beneath the bark, somewhat characteristic of bacterial wilt (Corynebacterium insidiosum). Plants with typical symptoms of bacterial wilt were found in only one field, but attempts to isolate the wilt bacterium from plants collected in this field have so far been unsuccessful.

Considerable downy mildew (Peronospora trifoliorum) was observed. Leaf spot, caused by Stagonospora meliloti, was found but was not causing much damage. Blackstem (Ascochyta imperfecta) was abundant on the plants, causing both leaf spot and withering of shoots due to girdling. Extensive stem and petiole lesions were present. The blackstem organism was fruiting abundantly on the old dead stems among the new growth. A few plants infected with mosaic virus were also found in several fields.

The farm in Henrico County, where stem nematode (Ditylenchus spp.) was found in 1948 and 1949, was visited again. The disease has continued to develop. In a test conducted on this farm by Henderson and Smith, plots of 20 different selections and varieties of alfalfa were sown in August 1948. Heavy applications of phosphorus and potash with borax were made so that nutrition would not be a limiting factor. When we examined the area, the stand on most of the plots had been depleted. Two selections, 77-48 and 77-97, obtained from Dr. Oliver Smith, looked promising in the test. Combined attacks by fungi and nematodes were apparently responsible for the loss of stand.

Some crown rot, caused by Sclerotinia trifoliorum, was observed on new stands of alfalfa planted last fall. However, because of the dry weather which prevailed during the three weeks preceding this survey, stem rot was much less severe than is usual at this time of the year.

The usual amount of Pseudopeziza leafspot was found. According to Drs. Henderson and Smith, Stemphylium botryosum, attacking both leaves and stems, is one of our big problems in growing alfalfa.

CLOVER

Many fields of crimson clover were observed in the eastern part of the State, severely attacked by Sclerotinia trifoliorum. Areas from one to several feet in diameter had been killed

by the disease and sclerotia of the organism were abundant in and around the crowns of affected plants.

The past winter was unusually mild, and stem rot became destructive on clovers in early February. During the first part of March, it appeared as if many fields of crimson clover and some fields of Ladino clover would be completely destroyed, but the three weeks of very dry weather checked development of stem rot and the severe losses expected did not occur generally.

VIRGINIA AGRICULTURAL EXTENSION SERVICE AND VIRGINIA AGRICULTURAL EXPERIMENT STATION, BLACKSBURG

PASTURE AND FORAGE LEGUME AND GRASS DISEASES IN NORTH CAROLINA IN 1949

J. Lewis Allison

Pasture and forage legumes and grasses grow well in North Carolina with proper cultural and management practices, their use increasing rapidly. Many of the same factors that favor the growing of forage crops in North Carolina also favor the diseases which attack them. The moderately high annual rainfall and moderate temperatures during the winter favor the growth of forage legumes and grasses the year around, but they also favor the development and spread of some diseases to which these crops are susceptible.

Economic damage to pasture and forage legumes and grasses was caused by the following diseases during 1949. The causal pathogen was identified in each case.

Crown and stem rot (Sclerotinia trifoliorum) was found throughout the State during the winter and early spring months, and fall seedings of alfalfa and clovers (crimson, medium red, and Ladino) were severely damaged. Fifty percent loss in stand was observed in some fields.

Summer blight (Rhizoctonia solani) was found throughout the Piedmont and Coastal Plain regions of the State during periods of hot, humid weather, and was destructive as a foliage pathogen on trefoil, alfalfa, Ladino clover, tall fescue grass, and orchard grass. Established stands of legumes and grasses were weakened and sometimes lost following severe attacks of the disease.

Southern blight (Sclerotium rolfsii) was found throughout the Piedmont and Coastal Plain regions of the State during periods of hot, wet weather and was destructive to Ladino clover and caused some damage to lespedeza and alfalfa.

Leaf and stem diseases were found throughout the State and caused defoliation and stem damage on susceptible hosts during every month in the year. Downy mildew (Peronospora trifoliorum), leafspots (Pseudopeziza medicaginis and Pleospora herbarum), leaf blotch (Pyrenopeziza medicaginis), blackstem (Ascochyta imperfecta), anthracnose (Colletotrichum trifolii) and rust (Uromyces striatus) on alfalfa; pepper spot (Pseudoplea trifolii) on Ladino clover; sooty blotch (Cymadothea trifolii) on crimson clover; net blotch (Helminthosporium dictyoides) on tall fescue grass, and brown stripe (Scolecotrichum graminis) on orchard grass, were the most prevalent.

Root rots (Fusarium spp.) were found attacking alfalfa especially on sandy soils, and were responsible for the depletion of established stands in some instances.

Root knot (Meloidogyne sp.) was found causing extensive damage to Ladino clover in localized areas during the summer months. Infected plants had heavily knotted root systems and such plants withered and died during short periods of dry weather.

Dodder (Cuscuta arvensis) was found throughout the State on annual lespedeza during the late summer. Some fields were completely overrun and in such cases forage as well as seed yields were reduced.

Other diseases of forage legumes and grasses were found and identified but were either limited in their occurrence or were causing little damage.

Three heretofore unreported diseases of forage legumes for North Carolina were found: alfalfa wilt (Corynebacterium insidiosum), endemic in one locality in the western mountain region of the State; alfalfa stem nematode (Ditylenchus sp.) in one alfalfa field in Harnett County; and leafspot (Curvularia geniculata) on Ladino clover in several locations in the State.

DIVISION OF FORAGE CROPS AND DISEASES, BUREAU OF PLANT INDUSTRY, SOILS AND AGRICULTURAL ENGINEERING, AND NORTH CAROLINA AGRICULTURAL EXPERIMENT STATION, RALEIGH, NORTH CAROLINA

CHEMICAL TREATMENT OF SOYBEAN SEED INCREASES GERMINATION IN LABORATORY TESTS

S. B. Fenne and W. C. White

In the process of setting up a series of farm demonstrations to demonstrate the value of chemical seed treatment of soybeans, it was deemed advisable to collect samples of each lot of seed before and after treatment, so that we could be certain whether or not chemical seed treatment was injurious to germination.

Table 1. Results of germination tests on treated and untreated soybean seed.

Laboratory Number	Variety	Remarks	Germination (percent)	
			Arasan-treated	Not treated
1	Woods Yellow		83	84
2	" "		95	92
3	S-100		95	81
4	"	Cracked and broken	91	83
5	C "	Certified	90	93
6	"	Uncleaned	89	85
7	"	Good	95	94
8	"	Uncleaned	92	89
9	"		92	79
10	"	Very good	93	89
11	"	Good	93	85
12	Ogden	Uncleaned	95	89
13	"	Good	95	79
14	"	Uncleaned	94	90
15	"	Very good	95	95
16	"	Fair	96	89
17	"	Uncleaned and badly cracked	93	91
18	"	Fair	97	76
19	"	Cracked	92	91
20	"	Very good	96	95
21	"	Very good	96	90
22	"	Fair	91	86
Average germination (percent)			93.1	87.5

The original plan for these demonstrations was to make stand counts in the field and to use this as a criterion for demonstrating the value of seed treatment. However, when the results of laboratory germination tests were received, there appeared to be a striking increase in germination, due to seed treatment. Especially was this true when cracked or damaged seed were used. Since there is so much interest in the chemical seed treatment of soybeans at the present time, it is thought worthwhile to publish the following results of the germination tests. In a later report, the results of the field counts, with and without inoculation (with Nitragen) will be given.

In this test, 22 different lots of seed, furnished by the demonstrators, were brought to the county agent's office in 12 counties. Each lot of seed consisted of three pecks -- one peck to be treated, one peck to be inoculated, and one peck to be treated and inoculated. Samples were collected before and after treatment, and notes made on the general appearance of the seed at the time of treatment.

Each lot of seed was treated with tetramethylthiuram disulphide at the rate of 2 oz. per bushel of seed, by placing the seed and the chemical in a closed container and shaking vigorously until all of the seed were uniformly covered with the dust. Samples of seed lots were sent to the State Seed Laboratory, State Department of Agriculture, for germination tests.

The data given in the Table indicate that seed treatment with Arasan increased the germination 5.6 percent over non-treated seed for the group as a whole, while in four extreme cases the increase amounted to 16 percent increase in germination over the untreated seed.

The results of these tests pose a very interesting question. Since treatment of soybean seed with Arasan frequently improves germination, should it be considered proper for a farmer whose seed is eligible for certification except for not meeting the germination requirement, to treat his seed with Arasan, and thereby meet the requirements, as far as germination is concerned? Should such seed be eligible for certification, if percentage of germination meets certification requirements after treatment?

VIRGINIA AGRICULTURAL EXTENSION SERVICE, BLACKSBURG

STALK ROT OF CORN IN MICHIGAN DURING 1949

E. A. Andrews and R. L. Janes

Unusually heavy breakage of corn stalks occurred in many fields of corn in Michigan during 1949. Frequently the weakened stalks were easily broken or pulled out of the ground by picking machines. Fields most severely affected could not be harvested except by hand.

A survey was made of 12 fields, in Kalamazoo, Van Buren, and Cass Counties, to determine the cause of the stalk breakage. The survey was intended to determine: (1) the severity of European corn borer infestation in the area; (2) the amount of breakage that occurred naturally in fields before harvest; and (3) whether or not corn borer injury occurred at the point of breakage and could have been primarily responsible. Table 1 shows the average number of borers per stalk on 6 fields in the area. These counts were made according to the standard procedure of the U. S. Department of Agriculture for corn borer surveys and each figure is based on a count of 25 stalks.

Table 1. Average number of European corn borers per stalk in 6 fields, and the number of broken stalks in 8 fields of corn in 3 counties of Michigan during 1949.

County	Field number	Number borers per stalk	Number plants examined	Number plants broken
Kalamazoo	1	1 +	25	8
Kalamazoo	2	---	10	8
Kalamazoo	3	1 -	10	8
Van Buren	4	3 +	25	3
Van Buren	7	---	10	0
Van Buren	9	1 +	25	10
Cass	11	2 -	50	6
Cass	12	2 -	50	35

The average number of borers per stalk varied from 1 in several fields to 3 and a fraction in field No. 4. This infestation would not ordinarily be considered sufficient to cause heavy breakage and as shown in Table 1 is not correlated in these fields with a heavy rate of breakage.

The amount of breakage that was present in the fields varied widely. In field No. 7 none occurred, whereas in field No. 1 8 out of 25 plants were broken, and in field No. 12 35 out of 50 plants were broken. These figures do not account for breakage that would occur during the process of harvesting these fields with a corn picker. Two growers indicated that they did not intend harvesting their corn because they had found that the breakage of the stalks prevented the use of machinery.

In addition, observations were made in most fields to determine the extent to which corn borer injury occurred at the point of breaking of individual stalks. Table 2 shows the number of broken stalks examined in each field and the number at which corn borer injury was evident at the point of breaking. In fields 1, 2, 3 and 6 there were very few stalks with corn borer injury at the point of breakage. This indicates that the stalk breakage was due in large measure to stalk rot instead of to injury by corn borers.

On splitting the stalks lengthwise, severe shredding of the pith was found consistently, especially at the nodes. In severely diseased stalks only vascular elements remained. This condition extended into the internodes of several of the specimens. Scrapings of the white to pink mycelial growth on the surface of many of the stalks were composed of masses of Fusarium

Table 2. Total number of broken stalks examined and the number with borer injury at the break.

County	Field number	Number broken stalks examined	Number broken stalks with borer injury at break
Kalamazoo	1	10	0
Kalamazoo	2	10	2
Kalamazoo	3	10	2
Kalamazoo	5	10	10
Kalamazoo	6	10	1
Van Buren	8	10	8
Van Buren	9	10	6
Van Buren	10	10	5
Cass	11	6	4
Cass	12	35	10

macroconidia. In a few instances the pith of the broken stalk was discolored black by Nigrospora spp. Dr. J. H. Muncie flamed the surface of several diseased specimens and selected tissue from the pith and the nodes. Tissue plantings in potato dextrose agar yielded a preponderance of Fusarium sp. Therefore, it was concluded that Fusarium sp. was the primary cause of the stalk rot observed.

Summary: Heavy breakage of corn stalks in Michigan during 1949 is attributed primarily to stalk rot. Only moderate European corn borer infestations were found in some of the severely damaged fields.

Fusarium spp. were associated with the disease and are considered the principal cause. Nigrospora spp. were present in some rotted stalks.

DEPARTMENT OF BOTANY AND PLANT PATHOLOGY, MICHIGAN STATE COLLEGE, EAST LANSING

BLACK-DOT DISEASE ON POTATO TUBERS IN MAINE

Donald Folsom and Reiner Bonde

The black-dot disease has been reported as on potato stems and stolons in ten States and as "probably general, following wilt and various stem lesions" (4). The pathogen (Colletotrichum sp.) was isolated in the summer of 1949 from old Maine-grown tubers by Mrs. Consuelo Bazan de Segura, a visiting scientist from Peru, and her cultures were used (by Bonde) to infect new tubers, from which the fungus was reisolated. Similar cultures have been secured from Maine-grown tubers this past winter, from pit lesions associated with the characteristic silvering and black dots on the tuber skin. The silvering and black dots are sometimes associated with Verticillium infection of tubers.

The pathogen probably is C. atramentarium, but may be C. maculans, spores not being available and being necessary for the determination of the species (2, 3). Some of the synonyms of these species are Vermicularia atramentaria, V. maculans, and V. varians (2, 3). Common names include dartrose, anthracnose, and foot rot. The disease can be confused with silver scurf (Spondylocladium atrovirens) (1).

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UNIVERSITY OF MAINE, ORONO

SKIN-SPOT DISEASE ON POTATO TUBERS IN MAINE

Donald Folsom and Reiner Bonde

The skin-spot disease (Oospora pustulans Owen and Wakefield) seems to be more common than usual this spring on potatoes stored in Maine. As judged by the indices of the Plant Disease Reporter and of the last thirty-year's reports of the Canadian Plant Disease Survey, this disease has been found in the United States only in Washington, Pennsylvania, and New York City, and only on newly imported potatoes, and has been found in Canada in several Provinces from Prince Edward Island to British Columbia, but only a few times and in each case only on a few tubers.

Isolation and culturing are easier at about 50° F. than at higher temperatures, following Owen (5). Isolation and identification in Maine were first made (by Bonde) in 1927, and the disease was seen (by Bonde) in various lots over past years since then.

Careful experiments in England (3) showed that when the fungus was added to the soil in which potatoes were grown, the disease was not apparent at digging time, but by April in cool storage the disease had developed.

In 1937 the Ministry of Agriculture and Fisheries of Great Britain published a leaflet (4) stating: "Records for the past 15 years show that complaints concerning Skin Spot in seed potatoes have steadily increased. In 1936 they came from 18 counties....and were concerned with 'blind' eyes, failure to sprout, and 'misses' in the crop. ....Instances of 20-30 percent of tubers failing to sprout and 30 percent of 'misses' in the field have occurred."

Experiments in Northern Ireland (2) in the thirties showed that tuber disinfection with an organic mercury dip within 8 weeks after digging greatly reduced the amount of the disease that appeared in storage, due to the treatment killing the fungus before it had time to dig in and develop in storage. Also, seed treatment reduced considerably the amount of disease that developed in storage in the crop grown from the treated seed.

In Scotland (1) in 1941-43, dipping infected tubers (not stated whether infected from soil or seed) for one minute in an organic mercury solution prior to storage, eliminated about 90% of the disease that appeared in storage (judging from undipped tubers).

Lack of experience with this disease in Maine makes it impossible to predict how much, if any, of the disease will appear in storage in a crop grown from infected seed. The European work on the problem indicates that a crop infected from infected seed or infested soil can be disposed of before the disease has had time to develop in storage.

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UNIVERSITY OF MAINE, ORONO

GRAY MOLD ON TOMATO CAUSES CROP LOSS AT FORT PIERCE, FLORIDA

Warren N. Stoner and William D. Hogan

The 1949 fall crops and the 1950 spring crops of tomatoes in the Fort Pierce area have suffered considerable damage from an infection of Botrytis cinerea.[1] Fruit losses have ranged from 100 percent to a trace. In most instances damage has been seen in fruits touching dead infected foliage with the greatest incidence in the centers of the plants. The disease has been seen on stems and leaves, however, and as it progressed more and more spores were produced until direct infections of stems, plant tips, blossoms, and young fruit reached epiphytotic proportions in some fields. These conditions prevailed on both Rutgers and Grothens varieties grown commercially in the area.

Production methods used (flat high beds, lack of sanitation, and unstaked field culture) plus climatic conditions favorable to the fungus are believed to be the reasons for this outbreak. It was observed that a field badly defoliated by Phytophthora infestans, which had been brought under control, contained only a trace of Botrytis and a good commercial crop was harvested, while some fields surrounding this block were so severely affected as to be abandoned. One small acreage of staked tomatoes in the area also escaped with very little damage.

Notification of this trouble was received only after it had reached general distribution in the fields and consequently the original source or sources could not be traced. It had been noted in the field, however, that this disease was making heavy inroads on yellow crookneck squash fruits earlier than the attack on tomatoes. In the tomato-growing areas the growers were using several different materials in an effort to check the disease. The following materials were used as sprays: Phygon, Parzate, Dithane, Bordeaux 8-12-100, Tersan alternated with Dithane, Copper A, and Sulfocide. A 20-80 Bordeaux dust was applied by airplane. All of these materials were applied in concentrations equal to or greater than the manufacturer's recommendations. Rates of application and spray schedules were varied by the growers. However, on an average the materials were applied every five days. In no case was any discernible control observed.

EVERGLADES EXPERIMENT STATION, BELLE GLADE, FLORIDA.

TOBACCO PLANT BED DISEASES IN KENTUCKY, 1950

W. D. Valleau

The plant bed season in Kentucky was late from sowing time on through setting. Some sowing was done early in March, but the majority was done late in March or early in April. There was a dry cold period in April when plants were either germinating or were small. This resulted in very thin stands. In overfertilized beds or in cyanamid-treated beds there was a great deal of damage to the cortex of the roots at the ground line. The plants continued to grow until finally the vascular tissue was destroyed just below the crown, and the plants yellowed and slowly died. The same condition resulted from the over use of ammonium nitrate.

May was unusually wet, and probably the worst outbreak of wildfire (Pseudomonas tabaci) occurred that we have experienced in over 30 years. Many beds apparently properly treated with Bordeaux developed wildfire. Part of this was the result of water washing over the beds, but some apparently originated in the bed. As Bordeaux usually has given almost perfect control, we looked for a reason for the partial breakdown of control this year. The answer seemed to be related to the time of plowing the beds. The wildfire bacteria live normally on the roots of many pasture plants and weeds. When beds are plowed in the fall the roots die and the bacteria finally disappear from the soil, in the absence of live roots. When the sod is turned up in late winter and the bed is moderately burned the bacteria are probably abundant a couple of inches down. With frequent heavy rains and the accompanying soaking of the leaves it is not surprising that bacteria get through the Bordeaux layer on the soil surface and cause infection. This year extensive beds that were plowed and steamed, burned, or methyl bromide-treated in the fall and properly ditched were completely free from wildfire, while spring-plowed beds were sometimes heavily infected.

While wildfire was common, angular leaf spot (P. angulata) was rare. Only a single outbreak

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[1] Field-collected specimens identified by John A. Stevenson, Principal Mycologist in Charge, Division of Mycology and Disease Survey, Plant Industry Station, Beltsville, Maryland.

of it in a bed was observed. Usually angular leaf spot is common and wildfire much less so.

Because of the mild, late outbreak of blue mold (Peronospora tabacina) in 1949, and therefore limited carryover, we predicted to farmers and manufacturers of Ferbam that there would be an extremely mild outbreak in 1950, unless there was a blow-in of spores from the Southeast.

The first report of blue mold was May 18, with five other reports of individual beds during the next week. At this time (June 9) there is scattering infection of the flecking type occurring in central Kentucky, but it is causing no injury. There should be no blue mold in Kentucky in 1951 unless there is a blow-in from the Southeast, causing early infection over Tennessee and Kentucky. To date, spores have blown in from the Southeast only twice, in 1937 and 1945, in the 20 years the disease has been established in the East.

Specimens of anthracnose on tobacco, caused by Colletotrichum destructivum, were received from Washington, Muhlenberg, and Christian counties.

Many reports have come in of 2, 4-D injury to tobacco. Most of it was the result of spraying bluegrass fields near tobacco beds, to kill weeds. In two instances beds were apparently sprayed with a killing dose out of spite. In one of these beds the plants were dying on one side of the bed while the plants on the other side were nearly normal. In one instance, tobacco in several fields and beds were severely injured as a result of aeroplane spraying with 2, 4-D to kill brush on some hillsides. Clover, trees, shrubs, house plants, and gardens in the valley were damaged.

Several instances of soft rot of the stems of recently set tobacco were observed. In one instance it was caused by Rhizoctonia, while in the others Pythium sp. was apparently the cause. The Pythium rot appears to be more common where a heavy cover crop of vetch and small grain was recently turned under.

KENTUCKY AGRICULTURAL EXPERIMENT STATION, LEXINGTON

FIELD OBSERVATIONS ON WHEAT MOSAIC IN KANSAS, NEBRASKA AND IOWA

J. R. Wallin

During the latter part of May, a trip was made to Lincoln, Nebraska, Manhattan, Kansas and return through southern Iowa to observe wheat mosaic in the eastern sections of the two aforementioned States.[1] At Lincoln, Dr. J. E. Livingston indicated that in a recent survey of western Nebraska he found mosaic only in Red Willow County. Dr. Livingston's statement was confirmed by the present survey in that enroute from Lincoln to Manhattan, Kansas, no wheat mosaic was noted in several fields visited.

At Manhattan, Kansas, Dr. Melchers reported that wheat mosaic was present in western Kansas but was not epiphytotic as in 1949. Moreover, he indicated that thus far all wheat varieties tested had proven susceptible to the mosaic virus.

On May 27 Claude King, extension Plant Pathologist at Kansas State College, served as guide to several fields in the vicinity of Topeka. According to Mr. King, some of the plants in these fields exhibited mosaic symptoms. This fact indicated that the mosaic virus inoculum might be rather widespread in Kansas.

Later in the day on May 27, three fields near Bedford, Iowa were observed for wheat mosaic. In one field several plants exhibited the same type of mosaic symptoms that were evident in Kansas. No inoculation studies have been conducted to confirm the presence of the wheat mosaic virus.

More recently on June 6, several wheat fields were visited along the route from Sydney, Iowa to Lincoln, Nebraska. Some stunted plants with symptoms suspicious of mosaic were observed in two fields near Palmyra and Syracuse, Nebraska. In addition, in one field east of Syracuse, bromegrass plants growing in the wheat seemed to exhibit mosaic symptoms. In two fields near Hamburg, Iowa, some stunted plants with mosaic symptoms were observed.

Later, on June 6, a thirty-acre field of Pawnee wheat near Onawa, Iowa was visited.[2] One hundred percent of the plants in this field were stunted, yellowed and exhibited mosaic symptoms. From all appearances, none of the plants in this field would head. If western wheat mosaic virus is the causal agent, this field is probably the most striking example in Iowa.

In digressing from wheat mosaic, one rather significant observation made in all fields visited in the three states was that Xanthomonas translucens was prevalent on wheat foliage. Some

[1]The author was accompanied by Dr. W. F. Buchholtz of the Iowa Agricultural Experiment Station.
[2]Dr. W. F. Buchholtz and Dr. C. S. Reddy of the Iowa Agricultural Exepriment Station accompanied the author on the trip.

bacteria were noted in the heads. In some fields only a few plants were attacked while in others 80 percent of the plants were diseased. X. translucens was more prevalent this year than last. Furthermore, the pathogen was found on bromegrass bordering the wheat fields in the three states. This fact suggests that bromegrass might harbor the pathogen over winter and supply inoculum in the spring.

DIVISION OF MYCOLOGY AND DISEASE SURVEY

BRIEF NOTES ON PLANT DISEASES

OBSERVATIONS ON THE "FLOWERING DOGWOOD SPOT ANTHRACNOSE" IN ATLANTA, GEORGIA

By Charles H. Driver

The first collection in Atlanta, Georgia, of flowering dogwood spot anthracnose, caused by the fungus Elsinoë corni Jenkins and Bitancourt (1, 2), was made in April 1948 and identified by Dr. J. H. Miller (3) of the University of Georgia. The collection was made in north Atlanta where the disease was not believed to be widespread. In a survey of the north Atlanta area, in April 1950, the writer collected many different specimens of floral bracts infected with the Sphaceloma stage of E. corni from the flowering dogwoods (Cornus florida L.) which occurred widely distributed on the streets throughout the area. Numerous trees were so heavily infected that the symptoms of the disease could be identified from a car while riding down the street. The pink flowering dogwoods (Cornus florida rubra André) were not found infected even though they occurred very close to heavily infected flowering dogwoods.

Literature Cited

1. Jenkins, A. E. and A. A. Bitancourt. A spot anthracnose on flowering dogwood. Plant Dis. Reptr. 32: 253-255. 1948.
2. _____, and _____. Diagnosis of the Elsinoë on flowering dogwood. Jour. Washington Acad. of Sci. 38: 362-365. 1948.
3. Julian H. Miller. A historical sketch of diseases of forest trees in Georgia. Plant Dis. Reptr. Suppl. 191: 98-101. 1950.

EMORY UNIVERSITY, EMORY UNIVERSITY, GEORGIA

FOMES ROOT-ROT OF RIBES IN NEW MEXICO

By John A. Stevenson and W. Andrew Archer

The root-rot or collar-rot of currants and gooseberries, with which Fomes ribis is commonly associated, has been reported by Weiss (Plant Disease Reporter 26: 180. 1942) as occurring from New York to Indiana and Minnesota and in Utah, on host species cultivated for fruit (Ribes nigrum, R. rubrum and R. sativum). Lowe (Polyporaceae of New York State, p. 112. 1942) notes that the fungus is rare in New York State and is known only on currant. Overholts for Pennsylvania (Pa. Agri. Exp. Sta. Bull. 316: 13. 1935) records the fungus on currant and gooseberry and again as rare. No reports have been found of the occurrence of the disease on ornamental Ribes species.

Recently an opportunity was afforded to examine a small ornamental planting, under irrigation, of Ribes aureum near Mesilla Park, New Mexico, which was seriously attacked. Dead and dying stems were much in evidence and attempts of infected plants to outgrow the disease had resulted in a striking witches-broom effect in a number of instances. Typical brown, imbricate fruiting bodies were in evidence around the bases of infected stems, though sometimes concealed by accumulated fallen leaves and other mulching material. Several stems were at times bound together by one fruiting body. Roots and crowns were characteristically rotted, so that infected stems were easily pulled loose. It is interesting to note in this connection that F. C. Stewart (Geneva Exp. Sta. Bull. 463: 179. 1919) found the fungus abundant on currants "yet the plants appeared to be in perfect health."

While studying this material additional unreported specimens were found in the Mycological Collections as follows: James R. Weir collected F. ribis on R. aureum at Wheatland, Wyoming, in 1917 and J. F. Martin and S. Wyckoff found the same fungus on R. glutinosum, another ornamental species, near Berkeley, California, in 1920.

DIVISION OF MYCOLOGY AND DISEASE SURVEY, AND DIVISION OF PLANT EXPLORATION AND INTRODUCTION

FUSARIUM WILT OF TOMATOES IN PUERTO RICO

By Thomas Theis

In May of 1949, a wilt disease of tomatoes was observed near Mayaguez, Puerto Rico, in a mixed plot of commercially important varieties. Symptoms included general stunting of the plants, yellowing and ultimate loss of the leaves from the bottom up, browning of the vascular bundles, and finally premature death of the plants. On six occasions, isolations were made and a Fusarium recovered each time. Healthy plants were inoculated (root dip technique) with a fungus isolate and wilt symptoms developed. From these plants the Fusarium culture was reisolated. The causal organism has been identified as Fusarium lycopersici Sacc. This disease has not previously been reported in Puerto Rico.

The resistance to a local isolate of Fusarium wilt of three varieties of tomatoes was compared in a greenhouse test: Pan America, of known high resistance, Marglobe of known partial resistance, and Platillo, a native variety, of unknown resistance. Sixty plants of each variety were used. When the plants were in the four-leaf stage, the roots were dipped in a standardized spore mycelium suspension of the Fusarium and transplanted to beds of constant soil temperature (26° C.). After 3 weeks, results were taken. This experiment and a replicate indicated three levels of resistance. Platillo is the most susceptible showing a complete uniform wilt in 8 days. Marglobe is resistant for a time but succumbed after 3 weeks. Pan America grew vigorously though the fungus was isolated from several plants.

In the past season, the field where the disease was first observed was planted with crosses of native and well known tomato varieties. Check rows of Pan America were included. Inoculum naturally present in the soil was depended on for infection. In spite of the dry cool weather infection was prevalent though erratic. Infection of some Pan America plants did take place, but in general, the vines were vigorous.

FEDERAL EXPERIMENT STATION, U. S. DEPARTMENT OF AGRICULTURE, MAYAGUEZ, PUERTO RICO

VERTICILLIUM WILT OF EGGPLANT OBSERVED IN PALM BEACH AND MARTIN COUNTIES, FLORIDA

By Warren N. Stoner and William D. Hogan

During the 1949-1950 growing season Verticillium albo-atrum Reinke and Berthold has been found in several eggplant fields in Palm Beach and Martin Counties. The disease has been noted in muck and sand land plantings. Damage has ranged from almost complete to minor loss.

The infection was observed in the vicinity of the following towns: Canal Point (Feb. 2, 1950); Indiantown (Feb. 3, 1950); on Kramer's Island near Chosen (Feb. 20, 1950); Loxahatchee (Feb. 27, 1950); Greenacres City (March 15 1950); Bean City (April 20, 1950); Boynton Beach (May 1, 1950).

In all fields the complete range of symptoms of the disease could be seen: wilting and yellowing of the older leaves followed by defoliation and the ultimate wilting and death of the apical growth. Depending on the progress of the disease browning of the vascular tissue could be seen when the roots and stems were cut.

Surface sterilized field collected specimens plated on potato dextrose agar at 20° C. produced typical colonies of Verticillium albo-atrum Reinke and Berthold.

EVERGLADES EXPERIMENT STATION, BELLE GLADE, FLORIDA

SOME DISEASES OF FORAGE LEGUMES IN KENTUCKY

By W. D. Valleau

HAIRY VETCH AND CRIMSON CLOVER. Black stem of hairy vetch, caused by Ascochyta sp., was present in all fields of hairy vetch observed. In many fields the vetch died out nearly completely. The bases of the stems for about 6 or 8 inches were usually blackened, whether the plants died or not. The reason why the blackened stems decayed in some instances and not in others was not always apparent. In one instance the vetch was living around the edges of a plot of vetch and small grain, while in the plot where the grain was growing rapidly much of the vetch was dying as late as May 15. The winter was warm and wet, which undoubtedly contributed to the severity of the disease.

Crown rot of crimson clover was unusually destructive in late winter and spring. The mild, moist winter undoubtedly was the reason for the severity of the disease. Adapted strains of red clover came through with very little injury as compared with crimson clover.

ALFALFA WILT. Specimens of alfalfa dying from wilt (Corynebacterium insidiosum) were

received from the Moorefield Community of Nicholas County, Kentucky. According to the report the majority of plants were affected. This is the second report of alfalfa wilt in Kentucky in several years.

KENTUCKY AGRICULTURAL EXPERIMENT STATION, LEXINGTON

STEM BLIGHT OF SOYBEANS IN MICHIGAN

By E. A. Andrews

Stem blight of soybeans (Diaporthe phaseolorum var. batatatis) was collected in Lenawee County in 1948 and in Hillsdale and Monroe Counties in 1949. Stems were discolored reddish-brown to black and branches from the affected areas were killed including leaves and pods. On the most severely diseased plants all leaves were killed and only a few small pods with small beans were produced.

The discoloration of the stems and the blighting of the leaves and pods occurred in mid-season well before normal maturity of the plants. A 50 percent reduction in yield was estimated for one field in Hillsdale County which was examined at harvest time.

Stems were exposed to the weather for about 6 weeks during December and January and then placed in a moist chamber. Clusters of perithecia and ascospores developed as described by Welch and Gilman.[1] Pycnidia and conidia were not observed in any of the material.

MICHIGAN STATE COLLEGE, EAST LANSING

MELTING-OUT OF BENT GRASS TURF IN MICHIGAN

By E. A. Andrews

Melting-out of bent grasses on golf greens in Michigan during 1949 reached epidemic proportions on a number of courses. The destruction of turf became serious during late June and throughout July coincident with late rains and warm humid weather generally.

The first indication of the disease could be detected by a blue cast of irregular areas of the green ranging in size from a few inches in diameter to 5 feet or more. The blue discoloration was not pronounced and was difficult to detect when standing directly over the spots. They showed up more plainly when looking across the green into the sun and from a distance of about 30 feet.

As the disease progresses the blue areas turn yellow and individual blades of grass begin to die-back from the tip. In the final stages the turf is killed and the area has to be resodded.

Helminthosporium sp. was isolated on potato dextrose agar by culturing single blades of grass that were showing the yellow discoloration and die-back at the tips.

Plugs of affected turf held in a moist chamber became overgrown with a light weft of mycelium and spores of Helminthosporium sp. were observed adhering to individual blades of grass examined under a microscope.

The above isolates of Helminthosporium were later used to reproduce the disease on bent grass turf by Wm. Klomperans and Dr. J. R. Vaughn, who are studying the pathogenicity and the identity of the fungus.

MICHIGAN STATE COLLEGE, EAST LANSING

SEPTORIA ON CEREALS IN MICHIGAN DURING 1949

By E. A. Andrews

OATS: Septoria avenae has been found causing leaf spot and stem rot of most of the oat acreage in Michigan during 1949. All varieties observed were susceptible, and the severity of the disease appeared to be correlated more with lack of seed treatment and a good rotation. In several fields grown from certified seed the disease was present but did not cause severe lodging.

WHEAT: Glume blotch caused by Septoria nodorum has been present on most of the wheat sent to this office because of head blight and low quality grain. It also was present in about 50 percent of all fields examined at random throughout the State.

Septoria tritici was identified on many samples of wheat that ripened prematurely or had shown evidence of crown rot and lodging early in the growing season. The pycnidia were observed on the leaf sheaths of the first few nodes at the base of the severely affected plants. The extent to which S. tritici was responsible for the discoloration and weakening of the tissues could not be determined on the basis of these observations. Many of the same samples had conspicuous mats of black mycelium on the basal portion of the stems. These mats fit those described as a symp-

[1] Welch, A. W. and Joseph C. Gilman. Hetero-and homo-thallic types of Diaporthe on soybeans. Phytopath. 38: 628-637. 1948.

tom of take-all but perithecia of Ophiobolus graminis could not be found on the material.

During the growing season several news articles reported poor quality grain being received at elevators. In most reports the poor quality was attributed to "unfavorable weather" during the ripening period. The diseases reported here probably account for much of the reduced quality.

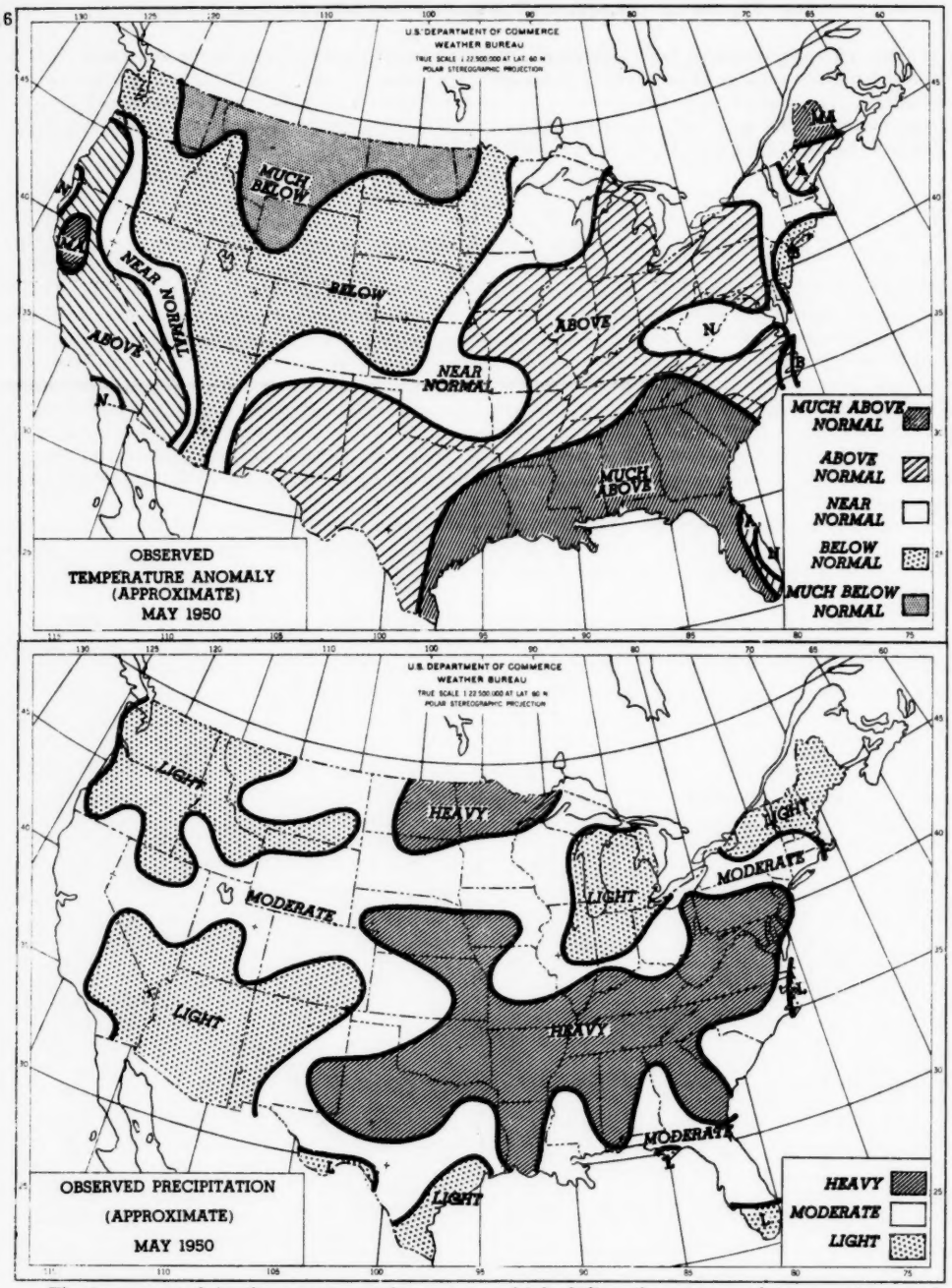
MICHIGAN STATE COLLEGE, EAST LANSING

SOME CORRECTIONS

NATION-WIDE RESULTS WITH FUNGICIDES IN 1949. FIFTH ANNUAL REPORT. CORRECTION: Our attention has been called to the omission of the active principle and source of M-294 used on muskmelons and reported on page 165 of Supplement 192. This material is cupric-N-nitrosophenylhydroxylamine, otherwide called copper cupferron, and was supplied by Sharples Chemicals, Incorporated, 317 Leconey Avenue, Palmyra, New Jersey. In the report submitted to us this material was also used as a spray against early blight on tomatoes with good results. Good results were obtained where 187 mgr. per square foot of the water-soluble ammonium salt as a soil treatment for damping-off in peppers was used. Greater concentrations inhibited growth. At the concentrations used in sprays this material was not toxic to muskmelons, tomatoes or string beans.

The results for downy mildew of onions reported on the bottom of page 163 should have been for Louisiana instead of Oregon. -- W. D. McClellan, Chairman, Sub-committee on Testing and Results of Newer Fungicides American Phytopathological Society.

BACTERIAL FASCIATION IN CALIFORNIA. CORRECTION: On page 123 of the May 15 Reporter, under Rhododendron sp., the date of finding the bacterial fasciation disease on azalea in California is given as February, 1940 when it should be 1950. -- Kenneth F. Baker, Division of Plant Pathology, University of California, Los Angeles 24, California.



The terms used in the accompanying maps, which define the ranges of temperature and precipitation, are numerical class limits. These are based on a statistical analysis of past records through which is determined the normal frequency of occurrence of temperatures and precipitation at various times of the year for different locations. For temperature the classes above, below, and near normal are so defined that they each normally occur one-fourth of the time; much above and much below normal, one-eighth of the time. Precipitation is depicted in terms of light, moderate, and heavy, each class normally occurring one-third of the time and thereby having equal probability of occurrence. These maps graphically represent only the general trends and give the country's weather picture at a glance. For quantitative studies, where monthly mean temperatures and actual precipitation records are needed for a given time and place, other publications of the Weather Bureau should be consulted. P. R. M.